

Patent
Serial No. 10/056,492
Amendment in Reply to Office Action of May 5, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method of embedding a watermark in an information signal which is compressed so as to include first signal samples having a given first value and further signal samples having a different value, the method comprising the actstep of modifying signal samples in accordance with a watermark pattern, wherein said modifying actstep is applied to signal samples if the modified signal sample equalsassumes the first value due to said modification, and wherein said modifying actstep is not applied to signal samples if the modified signal sample does not equalassumes the first value due to said modification.

2. (Original) The method as claimed in claim 1, wherein the first value is zero and the signal samples qualified for modification are signal samples having the smallest non-zero value.

3. (Original) The method as claimed in claim 1, wherein the

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signal samples have been quantized with a quantizer step size, and the signal samples qualified for modification are signal samples being quantized with a step size which is less than a predetermined threshold.

4. (Original) The method as claimed in claim 1, wherein the information signal is divided into sections and the number of signal samples qualified for modification is limited to a predetermined maximum per section.

5. (Currently Amended) A method as claimed in claim 4, wherein the signal samples of a section have been quantized in accordance with a quantizer step scale, the method including the act/step of controlling said maximum of modified signal samples in dependence upon said quantizer step scale.

6. (Currently amended) A method as claimed in claim 1, wherein the information signal is divided into sections and the signal samples of a section have been quantized in accordance with a quantizer step scale, the method including the act/step of controlling a position of the signal samples qualified for

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modification within a section in dependence upon said quantizer step scale.

7. (Currently amended) The method as claimed in claim 1, wherein the compressed signal includes variable-length code words each identifying a run of first signal samples and a subsequent or preceding further signal sample, the method further comprising the steps of:

- decoding the variable-length code words into respective first and further signal samples prior to said modifying step;
- merging the modified signal sample with succeeding or preceding first signal samples to obtain a new run of first signal samples, and
- encoding the new run of first signal samples and a subsequent or preceding further signal sample into a new variable-length code word.

8. (Currently amended) An arrangement for embedding a watermark in an information signal which is compressed so as to include first signal samples having a given first value and further signal samples having a different value, the arrangement comprising means

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for modifying signal samples in accordance with a watermark pattern, wherein the modifying means are arranged to modify signal samples if the modified signal sample equalsassumes the first value due to said modification, and wherein the modifying means are arranged to not modify signal samples if the modified signal sample does not equalassumes the first value due to said modification.

9. (Currently Amended) An application embodied on a computer readable medium configured to control a processor to embed a watermark in an information signal which is compressed so as to include first signal samples having a given first value and further signal samples having a different value, the application comprising:

a portion configured to modify signal samples in accordance with a watermark pattern; and

a portion configured to produce the modified signal sample if the modified signal sample equalsassumes the first value due to the modification and configured to produce an unmodified signal sample if the modified signal sample does not equalassumes the first value due to the modification.

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10. (Previously Presented) The application of Claim 9, wherein the portion configured to produce the modified and unmodified signal samples is configured to only modify signal samples having a smallest non-zero value of the signal samples.

11. (Previously Presented) The application of Claim 9, comprising a portion configured to quantize the signal samples with a quantizer step size, wherein the portion configured to produce the modified and unmodified signal samples is configured to only modify signal samples quantized with a step size which is less than a predetermined threshold.

12. (Previously Presented) The application of Claim 9, comprising a portion configured to divide the signal samples into sections, wherein the portion configured to produce the modified and unmodified signal samples is configured to only modify a predetermined number of signal samples per section.

13. (Previously Presented) The application of Claim 12, comprising a portion configured to quantize the signal samples with a quantizer step scale, wherein the portion configured to produce

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the modified and unmodified signal samples is configured to modify signal samples in dependence upon the quantizer step scale.

14. (Previously Presented) The application of Claim 9, comprising:

a portion configured to divide the signal samples into sections; and

a portion configured to quantize the signal samples with a quantizer step scale, wherein the portion configured to produce the modified and unmodified signal samples is configured to control a position of the signal samples modified within a section in dependence upon the quantizer step scale.

15. (Previously Presented) The application of Claim 9, wherein the compressed signal includes variable-length code words each identifying a run of first signal samples and a subsequent or preceding further signal sample, the application further comprising:

a portion configured to decode the variable-length code words into respective first and further signal samples prior to producing the modified and unmodified signal samples;

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a portion configured to merge the modified and unmodified signal samples with succeeding or preceding first signal samples to obtain a new run of first signal samples, and

a portion configured to encode the new run of first signal samples and a subsequent or preceding further signal sample into a new variable-length code word.

16. (Previously Presented) The application of Claim 9, wherein the watermark is represented by DCT coefficients and the portion configured to modify the signal samples is configured to modify the signal samples in accordance with a corresponding sign of the watermark DCT coefficients.

17. (Previously Presented) The application of Claim 16, wherein the signal samples are represented by DCT coefficients and the portion configured to modify the signal samples is configured to modify a range of signal sample DCT coefficients in accordance with the corresponding sign of the watermark DCT coefficients.

18. (Previously Presented) The application of Claim 9, wherein the watermark is represented by DCT coefficients and the portion

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configured to modify the signal samples is configured to modify the signal samples in accordance with only a plurality of most significant DCT coefficients.

19. (Previously Presented) The application of Claim 9, wherein the information signal contains field-coded DCT blocks and frame-coded DCT blocks, and wherein the portion configured to modify signal samples is configured to modify field-coded DCT blocks with a first watermark and is configured to modify frame-coded DCT blocks with a second watermark.